UNIVERSITI PUTRA MALAYSIA

STRATEGIES FOR IMPLEMENTING INTEGRATED MANAGEMENT SYSTEM IN THE MALAYSIAN MANUFACTURING COMPANIES

MUSLI BIN MOHAMMAD.

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By

MUSLI BIN MOHAMMAD

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science

January 2006

In dedication to:

My dear parents, for their affectionate caring;

my beloved wife, Siti Nurdiyana for her understanding and encouragement; and

my daughter, Najlaa' Afiqah who has made my life happier.

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

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January 2006

Chairman : Ir. Hj. Mohd. Rasid bin Osman

Faculty : Engineering

Integrated Management System (IMS) is one of the approaches to gain competitiveness and enter the free trade markets. By implementing IMS, several business related management systems such as Quality Management System (QMS), Environmental Management System (EMS) and Occupational Health and Safety Management System (OHSMS) could be integrated in order to satisfy a variety of stakeholders. The main purposes of this study were to assess the status of IMS implementation, investigate the implementation of IMS and propose the strategies for implementing IMS in the Malaysian manufacturing companies. Survey was employed to collect data on the status of IMS implementation, the IMS strategies that have been used and the strategies that should be used by the companies. Questionnaires were distributed to 87 companies that are certified with both ISO9000 and ISO14000, which resulted in a response rate of 36.8%. Three case studies were conducted at the manufacturing companies that have implemented IMS, in order to know how the IMS strategies have been implemented by them. For the status of IMS implementation, the results from the survey indicate that only 46.9% of the manufacturing companies that are certified with ISO9000 and ISO14000 have

implemented IMS and the level of practice is moderate. Most of these companies (92.3%) have implemented IMS for a period of not more than three years, which could be considered as new. This study has also revealed the strategies for implementing IMS in the Malaysian manufacturing companies. Based on the survey results, it was found that the companies should start with implementing the management systems individually and then followed by integration. The sequence of integration should starts with establishing the QMS first. It is followed by integrating the EMS with the existing QMS (EMS + QMS = QEMS), and finally integrating the OHSMS with the existing QEMS (Quality and Environmental Management System). In terms of the types of integration, the companies should utilise full integration. The companies should also use the management system standard approach (ISO9000, ISO14000 and/or OHSAS18000) as a basis for integrating the management systems. Five most Critical Success Factors (CSFs) for IMS implementation are: management commitment and leadership, education and training, continual improvement, performance measurement, and systems and processes. The main barriers for implementing IMS are: lack of trained and experience staff to implement IMS, lack of time to devote to IMS initiatives, and lack of employees' awareness and understanding on IMS implementation. Most of the results obtained from the survey are consistent with the results from the case study, except for the types of integration. Even though the results from the survey indicate that the companies should use full integration, it was found that all the case companies have been using partial integration. This project culminates with conclusions, suggestion of steps for implementing IMS in the manufacturing companies and future research recommendations.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Master Sains

STRATEGI-STRATEGI BAGI MELAKSANAKAN PENGINTEGRASIAN SISTEM PENGURUSAN UNTUK SYARIKAT-SYARIKAT PEMBUATAN DI MALAYSIA

Oleh

MUSLI BIN MOHAMMAD

Januari 2006

Pengerusi : Ir. Hj. Mohd. Rasid bin Osman

Fakulti : Kejuruteraan

Pengintegrasian Sistem Pengurusan (PSP) merupakan salah satu pendekatan untuk meningkatkan daya saing dan menembusi pasaran perdagangan bebas. Dengan melaksanakan PSP, pelbagai sistem pengurusan yang berkaitan dengan bisnes seperti Sistem Pengurusan Kualiti (SPK), Sistem Pengurusan Alam Sekitar (SPAS) dan Sistem Pengurusan Kesihatan dan Keselamatan Pekerjaan (SPKKP) dapat diintegrasikan bagi memenuhi keperluan pelbagai jenis pelanggan. Tujuan utama kajian ini adalah untuk menilai status perlaksanaan PSP, mengkaji perlaksanaan PSP dan mencadangkan strategi-strategi untuk melaksanakan PSP di syarikat-syarikat pembuatan di Malaysia. Tinjauan umum telah dijalankan untuk mengumpul data berkaitan status perlaksanaan PSP, strategi-strategi yang telah dilaksanakan dan strategi-strategi yang sepatutnya digunakan oleh syarikat. Borang kajiselidik telah diedarkan kepada 87 syarikat yang memiliki kedua-dua persijilan ISO9000 dan ISO14000, yang mana ia telah mendapat kadar maklumbalas sebanyak 36.8%. Tiga kajian kes telah dijalankan di syarikat-syarikat yang melaksanakan PSP bagi mengetahui bagaimana strategi-strategi PSP telah dilaksanakan oleh mereka. Untuk status perlaksanaan PSP, keputusan daripada tinjauan umum menunjukkan 46.9%

syarikat yang memiliki persijilan ISO9000 dan ISO14000 telah melaksanakan PSP, dan tahap perlaksanaan mereka adalah sederhana. Majoriti syarikat-syarikat ini (92.3%) telah melaksanakan PSP untuk tempoh tidak melebihi tiga tahun, yang mana boleh dianggap masih baru. Kajian ini juga mendedahkan strategi untuk melaksanakan PSP di syarikat-syarikat pembuatan di Malaysia. Berdasarkan tinjauan umum, ia mendapati bahawa syarikat seharusnya bermula dengan melaksanakan sistem pengurusan secara individu dan seterusnya diikuti dengan pengintegrasian. Turutan pengintegrasian seharusnya bermula dengan melaksanakan SPK dahulu. Kemudian, ia diikuti dengan mengintegrasikan SPAS dengan SPK sediada (SPAS + SPK = SPKAS), dan akhirnya mengintegrasikan SPKKP dengan SPKAS (Sistem Pengurusan Kualiti dan Alam Sekitar) sediada. Berkaitan jenis pengintegrasian, syarikat seharusnya memanfaatkan pengintegrasian penuh. Syarikat juga seharusnya menggunakan standard untuk sistem pengurusan (ISO9000, ISO14000 dan/atau OHSAS18000) sebagai satu pendekatan untuk mengintegrasikan beberapa sistem pengurusan. Lima faktor paling kritikal untuk kejayaan perlaksanaan PSP adalah komitmen dan kepimpinan pihak pengurusan, pendidikan dan latihan, pembaikan berterusan, pengukuran prestasi serta sistem dan proses. Halangan utama untuk melaksanakan PSP pula adalah kekurangan pekerja yang terlatih dan berpengalaman untuk melaksanakan PSP, kekangan masa untuk melaksanakan aktiviti-aktiviti PSP, dan kekurangan kesedaran serta kefahaman tentang perlaksanaan PSP. Hampir keseluruhan keputusan yang diperolehi daripada tinjauan umum adalah selari dengan keputusan yang diperolehi daripada kajian kes, kecuali untuk jenis pengintegrasian. Sungguhpun keputusan daripada tinjauan umum menunjukkan bahawa syarikat seharusnya menggunakan pengintegrasian penuh, namun didapati bahawa kesemua syarikat-syarikat yang terlibat dalam kajian kes menggunakan pengintegrasian

separa. Projek ini diakhiri dengan kesimpulan, cadangan langkah-langkah untuk melaksanakan PSP di syarikat-syarikat pembuatan dan cadangan-cadangan untuk kajian akan datang.

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I certify that an Examination Committee has met on 23rd of January 2006 to conduct the final examination of Musli bin Mohammad on his degree of Master of Science thesis entitled "Strategies for Implementing Integrated Management System in the Malaysian Manufacturing Companies" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

Ir. Megat Mohamad Hamdan Megat Ahmad, PhD
Associate Professor
Faculty of Engineering
Universiti Putra Malaysia
(Chairman)

Ir. Mohd. Sapuan Salit, PhD
Associate Professor
Faculty of Engineering
Universiti Putra Malaysia
(Internal Examiner)

Tang Sai Hong, PhD
Lecturer
Faculty of Engineering
Universiti Putra Malaysia
(Internal Examiner)

Ir. Sha'ri Mohd. Yusof, PhD
Associate Professor
Faculty of Mechanical Engineering
Universiti Teknologi Malaysia
(External Examiner)

HASANAH MOHD. GHAZALI, PhD
Professor/Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia

Date:

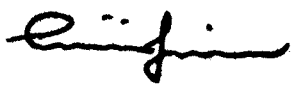
16 FEB 2006

This thesis submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirements for the degree of Master of Science. The members of the Supervisory Committee are as follows:

Ir. Mohd. Rasid Osman
Lecturer
Faculty of Engineering
Universiti Putra Malaysia
(Chairman)

Rosnah Mohd. Yusuff, PhD
Associate Professor
Faculty of Engineering
Universiti Putra Malaysia
(Member)

Napsiah Ismail, PhD
Associate Professor
Faculty of Engineering
Universiti Putra Malaysia
(Member)



AINI IDERIS, PhD
Professor/Dean
School of Graduate Studies
Universiti Putra Malaysia

Date: 09 MAR 2006

DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.

MUSLI BIN MOHAMMAD

Date: 26 January, 2006

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LIST OF ABBREVIATIONS/NOTATIONS/GLOSSARY OF TERMS

BSI	-	British Standards Institute
BSS	-	British Standards Society
CSF	-	Critical Success Factor
EHSMS	-	Environmental, Health and Safety Management System
EMS	-	Environmental Management System
EQA	-	European Quality Award
FMM	-	Federation of Malaysian Manufacturers
IMS	-	Integrated Management System
IQA	-	Institute of Quality Assurance
ISO	-	International Organization for Standardisation
KPI	-	Key Performance Indicator
MBNQA	-	Malcolm Baldrige National Quality Award
OHSMS	-	Occupational Health and Safety Management System
PDCA	-	Plan-Do-Check-Action
PPE	-	Personal Protection Equipment
QCC	-	Quality Control Circle
QEMS	-	Quality and Environmental Management Systems
QEHSMS	-	Quality, Environmental, Health and Safety Management System
QMS	-	Quality Management System
SIRIM	-	Standards and Industrial Research Institute of Malaysia
SME	-	Small and Medium Sized Enterprise
SPSS	-	Statistical Package for Social Science
TQM	-	Total Quality Management

CHAPTER 1

INTRODUCTION

1.1 Background of the Research

In the era of globalisation, complying with management systems is vital for the companies to gain competitiveness and enter the free trade markets. Normally, the management systems are operated independently by different departments in the same company. The certification of the management system standards such as ISO9000, QS9000 and ISO/TS16949 for Quality Management System (QMS), ISO14000 for Environmental Management System (EMS) and OHSAS18000 for Occupational Health and Safety Management System (OHSMS) are also conducted separately.

However, the business trend nowadays requires the related management systems to be integrated in order to reduce paperwork, minimise costs, eliminate redundancies and eventually improve system efficiency and effectiveness. For this reason, several countries, for examples New Zealand, Australia, France, the Netherlands, Denmark and Spain have developed or are developing their own standard for Integrated Management System (IMS) (Jorgensen et al., 2005).

According to Beckmerhagen et al. (2003), by developing and practising IMS, most companies could create a lean system compliant to most regulatory and voluntary standards, and still reduce failures, environmental impacts and workplace injuries.

Moreover, the implementation of IMS can helps companies to improve their overall quality, environmental, safety, health and even public accountability performance. The companies that can provide quality and environmentally friendly products and services might have greater potential to capture larger market shares and returns (Pun and Hui, 2001; Willig, 1994; Chen, 1997; Aboulnaga, 1998).

For better understanding of IMS, the core of an IMS and examples of standards through which the integration can be based is illustrated in Figure 1.1. As shown in the diagram, the IMS is located in the centre of the three management systems and shares common elements with them.

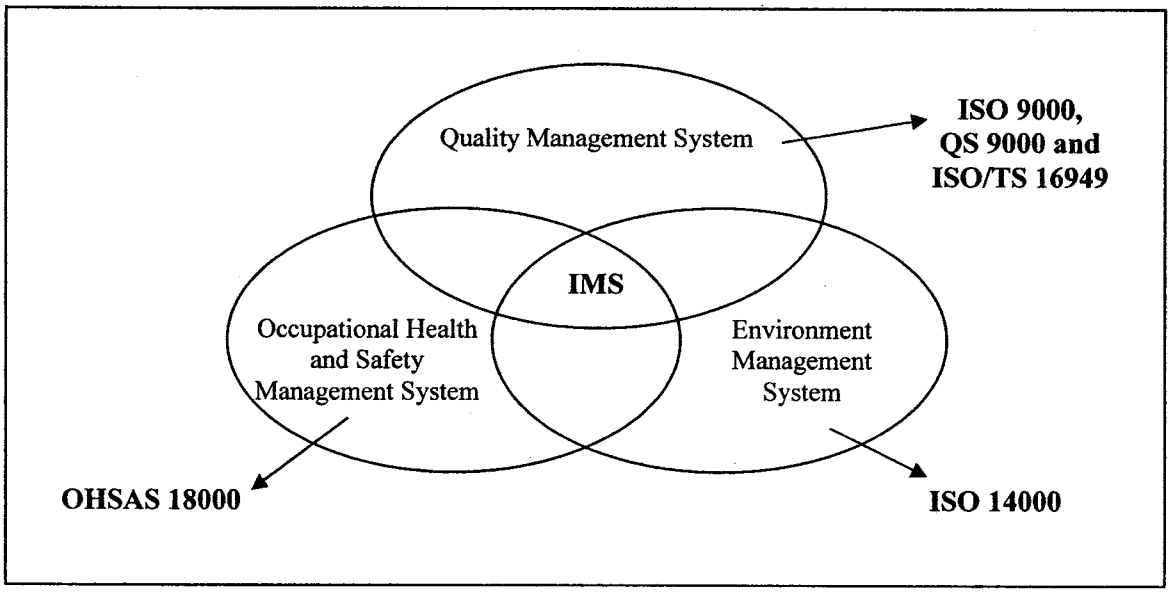

Figure 1.1: The core of the IMS and examples of standards on which it can be based (Winder, 2000)

Based on the discussion with several practitioners, it was found that the IMS implementation in Malaysia is still new and no standard has been developed for it. Most of the Malaysian companies normally implement and certify their management systems separately. For the companies that intend to integrate the management

systems, they are facing a lot of problems due to lack of meaningful guidelines on what should be the suitable strategies and how to implement it. This issue has also been highlighted by other researchers such as Karapetrovic (2002) and, Jonker and Karapetrovic (2004). In relation to this, Beckmerhagen et al. (2003) has stressed the needs of providing a suitable strategies and "how-to" methodology in assisting the companies to implement IMS. By using the suitable and workable strategies, the companies would be able to implement IMS successfully in a shorter period of time.

Therefore, the identification of strategies for implementing IMS is an important area to be studied. The outcomes of this study could help the Malaysian companies that are trying to implement IMS in their organisations. This study has focussed on the manufacturing companies due to their nature of operations that deal more on the quality, environmental, safety and health issues. The manufacturing companies also form the majority of Malaysian companies that certified with management system standards such as ISO9000, ISO14000 and OHSAS18000 (SIRIM, 2004). Furthermore, manufacturing is the fastest growing sector in Malaysia with value-added expanding by 9.8 per cent and an important contributor to the economy accounting for 31.6 per cent of Gross Domestic Product (GDP) in 2004 (Ministry of Finance Malaysia, 2005; Department of Statistics Malaysia, 2005).

1.2 Objectives of the Research

The objectives of the research are:

(i) To assess the status of IMS implementation in the Malaysian manufacturing companies;

(ii) To investigate the strategies for implementing IMS and its implementation in the Malaysian manufacturing companies;

(iii) To propose the strategies for implementing IMS in the Malaysian manufacturing companies.

1.3 Scope of the Research

This research is carried out to study the IMS implementation in the Malaysian manufacturing companies covering on the following areas:

(i) Integration is limited to only three well-known management systems in Malaysia which are the Quality Management System (ISO9000, QS9000 and TS/ISO 16949), Environmental Management System (ISO 14000) and, Occupational Health and Safety Management System (OHSAS 18000). Therefore, the scope of integration comprises of the QMS and EMS; EMS and OHSMS; QMS and OHSMS; or QMS, EMS and OHSMS.

(ii) Strategies for IMS implementation encompass of the ways to integrate the management systems, types of management systems integration, approaches for integrating the management systems, Critical Success Factors (CSFs) for IMS implementation and barriers for implementing IMS.

(iii) Sample for this research consists of the companies that have certified with both ISO9000 and ISO14000 as listed in the FMM Directory 2004 (FMM, 2004) and SIRIM QAS International Directory of Certified Products and Companies 2004 (SIRIM, 2004).

1.4 Importance of the Research

Many organisations have found that one of the ways to improve business performance is through the establishment of management systems, especially the IMS (Coelho and Moy, 2003). The IMS concepts will become a more and more important competitive factor in the future (Scipioni et al., 2001). Due to the importance of implementing IMS, this research attempts to flourish studies in this area within the Malaysian manufacturing companies. The findings from this research would be making the following important contributions:

(i) To indicate the current status of IMS implementation in the Malaysian manufacturing companies, since currently no data or research finding on this issue is available;

(ii) To help the Malaysian manufacturing companies to implement IMS, by discussing and proposing the strategies for implementing IMS;

(iii) To enrich the pool of reference materials and findings relating to the strategies for implementing IMS in the manufacturing companies, which are relatively scarce since very few journals and research papers have been found;

(iv) To promote IMS implementation in the Malaysian manufacturing companies, by highlighting several benefits and importance of implementing IMS.